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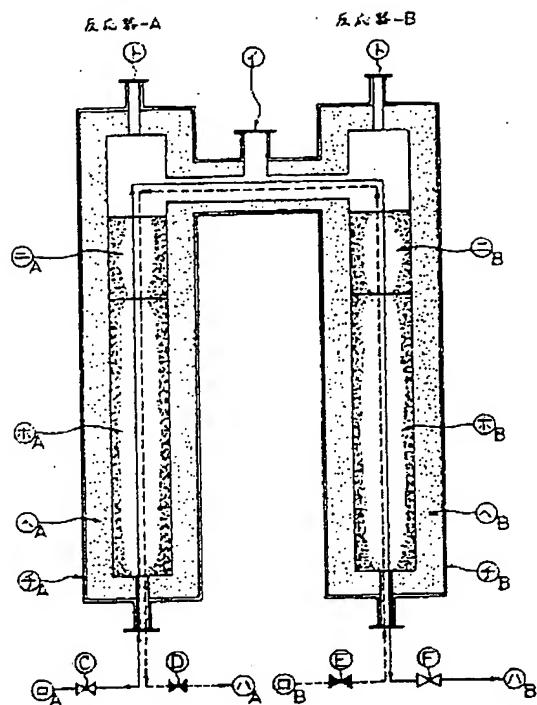
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TITLE : INDUSTRIAL PRODUCTION OF TRICHLOROSILANE



ABSTRACT : PURPOSE: To obtain trichlorosilane ($SiCl_3$) free from contamination of impurities, in a short time and at low temperatures, by reaction between $SiCl_4$ and H_2 in the presence of a catalyst using heat storage-type ceramic reactors.

CONSTITUTION: A reaction is carried out between $SiCl_4$ and H_2 in the presence of a catalyst with a platinum group metal and/or its silicide carried thereon, using two or more changeover heat storage-type ceramic reactors to obtain the objective $SiCl_3$. The processes are as follows: H_2 gas heated to 800~1,100°C is fed through the high-temperature H_2 inlet 1 to the upper part 4B of the catalyst bed in the reactor B. $SiCl_4$ vaporized in an evaporator is premixed with H_2 gas followed by feeding through the inlet 2A to the reactor A and then performing heat recovery during rising through the inert fused silica pebble bed 5A to effect temperature rise, thus introducing the resultant mixture into the catalyst bed 4A to make a conversion into $SiCl_3$. The reaction product thus obtained is combined with the high-temperature H_2 gas followed by introduction into the catalyst bed 4B to complete said conversion, the resulting product being then discharged through the outlet 3B. In the next step, the $SiCl_4$ is passed from the inlet 2B through the dotted line in the figure, the product obtained being discharged through the outlet 3A.

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